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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,759	05/26/2005	Gerd Maussner	2002P19550WOUS	2475

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EXAMINER
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BEVERIDGE, RACHEL E

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 09/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/536,759	<b>Applicant(s)</b> MAUSSNER ET AL.	
	<b>Examiner</b> Rachel E. Beveridge	<b>Art Unit</b> 1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 11-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11, 12 and 14-20 is/are rejected.
- 7) ☒ Claim(s) 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11, 15-17, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodwater et al. (US 6,173,491 B1) in view of Litwinski et al. (US 6,237,835 B1).

With respect to claims 11, 15-20, Goodwater discloses a method for fixing turbine engine vanes with a component assembly that allows the replacement of airfoils and/or platforms with improved castings in the form of improved alloys or physical geometry, or both (Goodwater, abstract, lines 1 and 6-9). Goodwater discloses a welding method for repair of remaining cracks in the platforms of the turbine vanes, and further plugging all cooling holes (38) in the platforms (4,6) (Goodwater, col. 4, lines 41-45). Furthermore, Goodwater teaches plugs (42) machined to fit into the openings in the airfoil platform (introducing a filling element into the component) and tack welding (44) to hold the plugs (42) in place (connecting the filling element to the component by a fixing method) (Goodwater, col. 4, lines 52-54). Goodwater teaches plugging these holes on the "gaspath surface 40" (first side of a component) (Goodwater, col. 4, lines 41-45 and 46-48). Goodwater discloses electron beam welding as a typical welding method used to weld the replacement airfoils to the stubs of the turbine engine vane platforms

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(Goodwater, col. 1, lines 61-63). Goodwater also discloses laser cladding the gaspath surfaces of the platforms, and states that laser cladding is a welding operation which applies a surface to a base material in which the surface has mechanical properties matching those of the base material (Goodwater, col. 5, lines 38 and 48-50). However, Goodwater lacks a holding element for keeping the plugs in the holes. Litwinski discloses a welding method that can be used for crack repair in a single workpiece (Litwinski, col. 1, lines 10-13). Litwinski teaches a backing member (40), as shown in figures 5 and 6, to be contoured to correspond to the contour [or lack of contour, figure 6] of the workpiece to be welded (Litwinski, col. 7, lines 47-49). Figures 5 and 6 show the backing member (40) to be a shape similar to that of the letter M. Furthermore, Litwinski discloses urging the backing member toward the weld zone, thus constraining the plasticized material within the weld zone (Litwinski, abstract, lines 14-16). Litwinski also discloses the backing member on the workpiece with a contact surface for the ends of the backing member (40), including rollers (46) and the support member (44). See figures 5 and 6. Litwinski teaches the backing support member to be movable relative to the workpiece (Litwinski, abstract, lines 22-23) and can therefore be placed there temporarily. Also, Litwinski's figures 5 and 6 show the backing member (40) with three contacting portions (44, 46) therefore generally holds the workpiece at each of these areas representing more than one holder, specifically three holders. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the crack repair method of Goodwater to include the holding apparatus of Litwinski in

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order to effectively support the weld zone and constrain the plasticized material within the weld zone during joining (Litwinski, col. 1, lines 62-66).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goodwater et al. (US 6,173,491 B1) and Litwinski et al. (US 6,237,835 B1) as applied to claim 1 above, and further in view of Eulenstein et al. (US 2001/0030224 A1).

With respect to claim 12, Goodwater and Litwinski lack disclosure of a spacer placed between the plug and the wall of the crack in the workpiece. However, Eulenstein discloses a foil with serves as a spacer between the components that are to be joined (Eulenstein, p. 2, paragraph 0015, lines 6-8). See the figures to observe the spacer. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined invention of Goodwater and Litwinski to include the spacer of Eulenstein in order to obtain a weld seam that is free of adverse effects (Eulenstein, p. 2, paragraph 0015, lines 8-10).

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goodwater et al. (US 6,173,491 B1) and Litwinski et al. (US 6,237,835 B1) as applied to claim 1 above, and further in view of Edgington (US 4,386,051).

With respect to claim 14, Goodwater and Litwinski lack disclosure of a solder method for repairing the cracks. Edgington teaches a method utilizing a specific solder composition which can be used to repair cracks in aluminum and aluminum alloy workpieces (Edgington, col. 4, lines 42-45). Thus, it would have been obvious to one of

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ordinary skill in the art at the time of the invention to modify the combined invention of Goodwater and Litwinski to include the solder method disclosed by Edgington in order to prepare better workpieces that can be used to create objects including boats, rafts, and aircrafts (Edgington, col. 4, lines 45-46).

### ***Allowable Subject Matter***

Claims 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art does not teach or suggest arranging the spacer in the gap between the plug and the workpiece before the holder is fitted to begin the welding process.

### ***Response to Arguments***

Applicant's arguments filed September 1, 2006 have been fully considered but they are not persuasive.

Applicant argues that the examiner's analogy between the backing member (40) of Litwinski and instantly claimed holder is incorrect (pages 4-5). The examiner disagrees. Furthermore, in response to applicant's arguments against the references individually (specifically Litwinski on page 5), one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck &*

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Co., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicant also argues the backing member (40) of Litwinski does not meet the structure and/or operational relationships of the claimed holder because there is no filling element in Litwinski to be connected to the component by a holder (page 5). However the examiner notes that Goodwater uses plugs as noted in the rejection of the claim. Furthermore, the backing members of Litwinski are used in combination with the plugged configuration of Goodwater as stated above in the rejection; and although neither of the references anticipates the claim, in combination they obviously arrive at the claimed limitations.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the crack repair method of Goodwater to include the holding apparatus of Litwinski in order to effectively support the weld zone and constrain the plasticized material within the weld zone during joining (Litwinski, col. 1, lines 62-66). The examiner also reminds the applicant that submission of unexpected results or expert witness in support of the allegation against combination of Goodwater and Litwinski (page 5) can be entered in support of applicant's arguments.

Applicant argues that the examiner should find in the applied references a suggestion as to why a backing member designed for a friction stir weld joint would be useful as a holder to connect a filling element to a component (page 5). The examiner reminds the applicant of the motivation cited above for combining the references. Also, it is the applicant's responsibility to provide evidence, rather than allegations, as to why the references absolutely cannot be combined as suggested by the examiner. Claim 11 also broadly states a "fixing method," and in subsequent dependent claims the fixing method is later defined as various welding techniques. Therefore, the friction stir welding technique disclosed by Litwinski satisfies a general welding technique (fixing method of claim 11), which would plasticize or melt material and solidify it in order to form a weld joint. As understood by the examiner, the applicant broadly claims plugging or filling a surface of the component and then connecting the filling element to the component via the fixing method (later claimed as welding). Therefore, the examiner's interpretation of the prior art satisfies a *prima facie* case of obviousness of the instant claim limitations. More particularly, Goodwater discloses brazing the gaspath surfaces (40) in order to seal the airfoil passages plugged by the plugs (42) (Goodwater, col. 5, lines 10-14), and Litwinski teaches utilizing the backing member (40) to constrain the plasticized material created during the welding operation (Litwinski, abstract and col. 1, lines 63-66). Therefore, it is obvious to utilize the backing member of Litwinski in order to constrain the plug and plasticized material created during the brazing process of Goodwater.



The applicant then argues that one of ordinary skill in the art would not be motivated to combine Eulenstein with the references that describe sealing between the filling element and the component, with respect to claim 12 (page 6). The examiner disagrees. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined invention of Goodwater and Litwinski to include the spacer of Eulenstein in order to obtain a weld seam that is free of adverse effects (Eulenstein, p. 2, paragraph 0015, lines 8-10).

Applicant also argues that "it is felt that the Examiner is using the claimed invention as a template to combine the references being applied to deprecate the claimed invention" (page 6). In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a

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reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Applicant argues that Edgington fails to remedy the fundamental deficiencies of Goodwater and Litwinski with respect to claim 14 (page 6). The examiner disagrees for all of the reasons discussed above with regard to the rejection over Goodwater and Litwinski.

### ***Conclusion***

This is a request for continued examination (RCE) of applicant's earlier Application No. 10/536,759. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rachel E. Beveridge whose telephone number is 571-272-5169. The examiner can normally be reached on Monday through Friday, 9 am to 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

reb  
September 7, 2006



**JONATHAN JOHNSON**  
**PRIMARY EXAMINER**